INFLUENCE OF PROJECT RISK MANAGEMENT PRACTICES ON ROAD PROJECTS IN NAKURU COUNTY, KENYA

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ABSTRACT

The main objective of this study was to ascertain how Project Risk Response and Control Practice influence road projects in Nakuru county, Kenya. The study aimed to find out the influence of risk response and risk control practices on the subsequent road construction projects in Nakuru county, Kenya. The prospect theory and the risk aversion theory served as the foundation for this study. Descriptive survey study design was employed. The 98 respondents in the study were engineers, risk managers, subcontractors, and contractors working on seven different road projects managed by Kenya rural roads authority in Nakuru county, Kenya. To gather primary data, standardized questionnaires were employed. The pilot test was conducted in Kericho county to evaluate the validity and dependability of the research tool. SPSS version 24 was used for the analysis of the gathered data. The results of descriptive statistics were presented in form of percentages, means, and standard deviations and tables. To establish the link between the variables, regression and correlation analyses were performed. From the findings the study concluded that there was a positive statistically significant relationship between project risk responses on completion of road projects in Nakuru County, Kenya with r=0.219 and p=0.002. There was a statistically significant relationship between project risk control on completion of road projects in Nakuru County, Kenya with r=0.269 and p=0.004. This showed that risk response and risk control all had an influence on completion of road projects in Nakuru County, Kenya.

Key words: Project Risk Response, Project Control Practice, Road projects.

INTRODUCTION

Global Perspective

Construction of roads is contemplated as among the most supportive and essential pillars for business environment in an economy (Pimchangthong & Boonjing, 2017). China has heavily invested in mega construction projects including the underwater railway tunnels but most of them have remained unsuccessful. For instance, since 2011, a total of 8 constructed bridges in China have collapsed in the country resulting into significant loss of human life. China has heavily invested in mega construction projects including the underwater railway tunnels but most of them have remained unsuccessful. For instance, since 2011, a total of 8 constructed bridges in China have collapsed in the country resulting into significant loss of human life. In 2015, the Yangmingtan bridge project in China that was valued at $300 million collapsed (Langfitt, 2017).

In India, the face a major problem of inability to implement construction projects at the required paced resulting into a backlog of these projects. Currently, a total of 218 construction projects have been delayed India and the government is facing the challenge of clearing their approval (Nallathiga, Shaikh & Sheik, 2019).

In Pakistan for instance, failure of infrastructure construction project is a common occurrence as illustrated by the collapse of Sher shah Bridge in Karachi (Wasima & Khalidi, 2018). In Jordan, most of the construction projects have remained unsuccessful contributed to by internal system hierarchy particularly from the perspective of the contractors (Khlaifat, Alyagoub, Sweis & Sweis, 2019). Evidence from Iran indicates that 597 thousand billion Rials was invested in construction projects in 2015, although 80% of these projects were unsuccessful while others reported time and cost overruns (Shahhossein, Afshar & Amiri, 2018). Additionally, the Research Center of the parliament of Iran reported that the unfinished construction projects has negatively impacted on the annual economy of Iran by costing the state above 200 thousand billion Rials which is close to 30% of the development annual budget of the country.

Regional perspective

Africa views the improvement of its infrastructure as essential to the continent's economic progress. It makes greater productivity possible, lowers poverty, and improves human welfare. Consequently, it is believed that infrastructure development is a key component that can affect the accomplishment of the Millennium Development Goals (MDGs). Infrastructure investment is responsible for more than half of Africa's recent economic growth (Birdsall, 2018). More investments in this field could lead to greater success. The World Bank (2018) claims that raising the caliber and quantity of infrastructure to match the world's top-performing nations may boost GDP, raise living standards, and promote greater equality throughout Africa.

In order to raise a substantial amount of money to build roads, clinics, and dams throughout Africa, Ghana's government has been pleading with the World Bank and the African Development Bank (Damoah & Akwei, 2017). The major emphasis of the past national budgets of Ghana has been on funding construction projects. However, in spite of all these efforts made by the Ghanaian government to support and invest in these construction projects, success of these project has remained a challenge (Damoah & Akwei, 2017, and Damoah & Kumi, 2018). Nigeria is one the countries in Africa that has a high number of abandoned, failed and ongoing construction projects presently (Obebe, Kolo, Enagi, & Adamu, 2020). Some of these unsuccessful construction projects in Nigeria include the Lagos-Calabar Railway Project (estimated at $11billion USD), Mambilla hydroelectric power plant project (valued at $5.8 billion), Ibeju Lekki Deep Seaports (valued at $1.2 billion) with an expected completion by 2021, the Lagos–Ibadan standard gauge rail line (valued at $2.1billon USD), Baro Inland Port Project (valued at N5.8 billon) (Obebe et al., 2020).

In South Africa, rarely are infrastructure construction projects successfully completed without undergoing some challenges and constraints that lead to cost and time overruns leading of incompletion or poor quality of the final output (Mugumbate & Kruger, 2021). This challenge has been ongoing especially in public sector leading to failure of construction projects at local, provincial and national government levels (Mugumbate & Kruger, 2021). In Uganda, most infrastructure construction projects have remained uncompleted at varied stages while others have been marked as whiteprint or blueprint and never implemented (Otim, Alinaitwe, Tindiwensi & Kerali, 2015).

According to the literature that is currently accessible, project risk management techniques help infrastructure construction projects succeed (Alsaadi & Norhayatizakuan, 2021). Risk identification helps in establishment and categorization of risk whose materialization would have significant adverse implication on the project (Mutunga & Ondara, 2021). Using qualitative and quantitative methodologies, risk analysis aims to identify risks individually or collectively so that they can be prioritized based on the project team's appetite for risk (Maritim & Chelule, 2018). The project team may identify and choose the best course of action to handle risks with the aid of risk response (Imbrizi & Mazieri, 2018). This is characterized by reactiveness or reactiveness towards risks by the project team. Risk control helps in monitoring the actions put in place for mitigation and undertake reassessment of the already known and the new risks that may emerge as the project progresses in the lifecycle (Aduma & Kimutai, 2018).

After complete failure and collapse of Somalia in 1991, infrastructure development in the country was adversely affected. However, since 2012, an internationally recognized government has been in place. Many areas including Galmudug State were adversely affected in terms of road development by the decades of civil war. In effort to realize economic recovery, the government of Somalia in collaboration with international partners has been working to implement infrastructure construction projects aimed at opening up the country and spurring trade. The implementation of these road construction projects in Somalia is critical towards the economic recovery efforts (BTI, 2022).

Local perspective

Since implementing its Vision 2030 plan, Kenya has given infrastructure development a high priority, among other things. In addition to creating a favorable economic climate, Vision 2030 seeks to establish and maintain Kenya's middle-income position (Government of Kenya, 2018). Assuring food security, offering universal healthcare, advancing manufacturing through industrialization, and providing cheap housing are the four main goals of Kenya's current Big Four Development Agenda. Appropriate and high-quality road infrastructure is needed to do this.

The Ministry of Roads and Transport's Infrastructure State Department oversees Kenya's road network (MoRT). The department's job is to build and maintain the nation's road network. It carries out its mandate through the Kenya Roads Board (KRB), which uses fuel levies to finance, supervise, and plan all road network upkeep in Kenya; Kenya Rural Roads Authority (KeRRA) is responsible for managing, developing, and maintaining Class C roads; Kenya National Highways Authority (KeNHA) oversees, develops, and maintains national trunk roads, which are classed as Class S, A, and B roads; Kenya Urban Roads Authority has the responsibility for Management, Development, Rehabilitation and Maintenance of all national urban roads. Kenya Wildlife Service (KWS) is responsible for managing, developing, and maintaining roads located within game reserves and national parks. Kenyan County Governments are in charge of managing, developing, and maintaining County Roads, which are roads classified below class C. (Kenya Roads Board,) Similar to other counties, the county administration of Nakuru has benefited from these. KeNHA, KURA, KeRRA, and the County Government, have completed a number of projects and are working on others.

Project Risk Management Practices

A project is a brief activity started with the intention of producing a special good, service, or outcome (PMBOK 2020). Planning, organizing, and managing resources are all part of project management, which helps to accomplish the aims and objectives of the endeavor. Achieving all project goals and objectives while being aware of the constraints on the project is the main difficulty of project management. Time, money, and scope are common constraints. Optimizing the allocation and integration of inputs required to accomplish the defined objectives represents the secondary and more ambitious task. Risk is defined by Le, Chong & Kashiwagi (2020) as exposure to gain or loss, or the probability of gain or loss multiplied by its corresponding size. Risk is defined by the PMBOK (2020) as an unpredictable event or circumstance that, if it materializes, could have a favorable or unfavorable impact on the goals of a project. Aven (2016) emphasizes how crucial it is for every risk management procedure to incorporate opportunity management.

The process of carrying out risk management planning, identification, analysis, reactions, monitoring, and control on a project is included in project risk management (PMBOK, 2020). Over the past few decades, the field of project risk management has grown and become a crucial component of project management. Numerous scholars, including Mohan & Tan-Mullins (2019) and Foulger, Wilson, Gluyas, Julian, & Davies (2018), contend that risk is an exposure to the likelihood of suffering a loss. Risk can have both positive and negative implications depending on the context in which it is used. Risk management procedures entail recognizing, comprehending, and calculating the possible unfavorable results that could have an impact on a project. Following the discovery of these undesirable occurrences, the risks are assessed according to their impact and likelihood. Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, probability/impact matrices (Risk matrices),

and the top ten risk item tracking approach Godfrey, (2022) are tools used in risk assessment. Following analysis, risks are prioritized or classified according to how important they are to a given project.

A five-point rating system for risk assessment can be used to rank probability and impact, according to Qazi & Simsekler (2021). The levels of risk are critical, serious, moderate, minor, and inconsequential. Mitigation, transfer, acceptance, and avoidance are all part of risk control and response. Positive risks are shared, increased, and exploited (PMBOK, 2020). In order to find new risks and evaluate the efficacy of risk control and solutions, risks are regularly reviewed and reevaluated. Rehacek (2017) lists five project risk management strategies, which include: probabilistic risk analysis, which evaluates the possibility of a risk occurring and its potential consequences; systematic risk identification through documentation reviews and information-gathering methods like interviews and SWOT analysis; Thorough planning for uncertainty to lower the likelihood and/or effects of a negative risk event to a manageable level; methodical trade-off analysis leading to a comprehensive plan for responding to risks; and assigning a risk manager.

Success of a Project

Typically, a project's success is determined by its needs, money, and timeframe. This criterion is still often employed in reports on project success in IT projects, even though it is currently the target of extensive criticism (Royal Academy of Engineering, 2017). The criticism focuses on three points that are related to the underlying assumptions of this definition: the project's success can be measured at the moment it has produced its deliverables; the project's success can be determined at the outset of the project, regardless of the amount of time, money, or requirements; and each project stakeholder can contribute equally to the project's success. Establishing time and financial constraints as well as requirements are always done at the start of the project, when uncertainty is at its highest Ika, & Pinto, (2022) and it is nearly hard to create reasonable goals and constraints.

A project is considered successful, according to Castro, Bahli, Barcaui, and Figueiredo (2021), provided it stays within the three constraints of time, money, and specifications. Proper feasibility studies, dedication to project methodology, planning, efficient monitoring, and evaluation are only a few of the success components in a project. The main performance metrics are project sickness (the project's ability or inability to provide the intended outcomes) and time and expense overruns. The focus is mostly on the results. Rabechini & Carvalho (2015). When a project is finished on schedule, on budget, to the satisfaction of all stakeholders, and in compliance with the specifications, it is often considered successful.

Ola-awo, Alayande, Olarewaju, & Oyewobi (2021) state that other factors that have been considered as indicators of project success include functionality, profitability to contractors,

lack of lawsuits and court cases, and "fitness for purpose." Alemayhu (2023) states that the three transaction criteria of time, money, and quality determine a project's success. Completion within the constraints of time, money, and quality will be just as important as completion itself in terms of success. The majority of projects in Kenya encounter a number of difficulties, such as completion delays, cost revaluations that increase, subpar craftsmanship, and early project termination. Researchers, clients, project sponsors, contractors, and other stakeholders are very concerned about the repeated instances of reported delays and increases in project costs for significant public sector projects in Kenya. These incidents raise serious questions about the government's ability to provide value for the taxpayers' money.

Major projects at KAA have not been finished on schedule, within budget, or in accordance with quality and design criteria, which is another example of this issue. It is consequently necessary for contractors to request extensions of time (EoT), price variations, and/or modification orders in order to finish the projects and cover the costs associated with the scope change. While many project deliverables fail throughout the project liability period, in certain situations they fail even before they are turned over to the project sponsor. Ashill, Naumann, and Jackson (2015) state that recognizing the major uncertainties at every stage of the development process and coming up with plans to deal with the gamut of potential outcomes will boost the chances of a project being implemented successfully. According to Xia Zou, Griffin, Wang, and Zhong (2018), risk management helps ensure that projects succeed because stakeholders modify their expectations and behavior based on their awareness of potential hazards.

Statement of the Problem

It is really concerning how frequently road building projects fail worldwide. Statistics from Global Data indicate that in Latin America, most infrastructure construction projects are characterized by cancelations and delays (Data Journalism Team, 2022). Information from North Korea provide evidence that unsuccessful completion of road construction projects is a global challenge with Ryugyong Hotel, the seventh largest building in the world whose construction started in 1987 although it has remained uncompleted and it is no even likely to be successfully completed any sooner (Dolan, 2020). This has been attributed to high costs required towards its successful implementation.

Road construction projects initiatives are crucial for each nation's economic development. A significant proportion of revenue of the government is spent on these Infrastructure construction projects and this holds in countries like Kenya. Notwithstanding, failure of these road construction projects is a waste of public resources that would otherwise have been spent on other alternatives for economic prosperity. It remains a fact that countries around the world including Kenya have initiated infrastructure construction projects that have not been

successfully implemented or completed. In developing countries like Kenya,

The government has prioritized the timely, cost-effective, and standard-compliant completion of construction projects, and risk management compliance is necessary to meet project performance expectations. According to Hillson & Simon (2020), the Kenya Rural Roads Authority faces financial risks and political intervention when building roads, which might hinder the project's completion. Project management requires the application of risk management techniques. Qazi, Quigley, Dickson, and Kirytopoulos (2016) state that controlling construction project risks is a must for every project to succeed and that mitigating project risks is one of the most important elements in project management success. In an attempt to attain construction project performance, project managers in Kenya have implemented risk management techniques, risk identification, risk analysis, and risk planning Mbugua, & Otuya, (2020). Although risk management techniques are used by top management, less is known about how much of a factor risk management plays in Kenyan construction projects' success or failure.

The ongoing road projects in Nakuru include Molo-Kibunja (Ksh.478 million), Salgaa-Rongai (Ksh.252.5 million), Subukia-Shrine (Ksh.241 million), Mau-Summit – Junction (Ksh.199 million), Maili Kumi-Nyahururu (Ksh.195.3 million), Maraigishu-Kinungi (Ksh.41 million) and Mang'u-Berer (Ksh.40 million). A lot of people in the academic and professional spheres believe that risk management plays a significant role in project success. Researchers, project sponsors, contractors, and other stakeholders are highly concerned about the frequent occurrences of delays in completion, upward revaluation of project costs, subpar workmanship, and premature termination of major government projects in Kenya. These issues raise serious concerns and raise doubts about the government's ability to provide value for taxpayer money. The study aimed to determine how project risk management methods affect the sequential completion of road projects in the county of Nakuru, Kenya, in order to fill in these gaps.

Purpose of the Study

The purpose of the research was to establish how project risk management practices influence completion of road projects in Nakuru county, Kenya.

Research Objectives

i. To establish the influence of project risk response practice on completion of road projects in Nakuru county, Kenya
ii. To determine the influence of risk control practice on completion of road projects in Nakuru county, Kenya

Research Questions

i. How does risk response planning practice influence completion of road projects in Nakuru county, Kenya?
ii. How does risk control practice influence completion of road projects in Nakuru County, Kenya?

LITERATURE REVIEW

Risk Response Planning Practice and completion of Road Projects

Risk response planning is a process that helps in creation of strategies or options aimed at solving the positive as well as negative risks in projects. Both positive and negative events are viewed as opportunities and risks respectively. Negative risks identified can be treated in four key strategies: avoidance, transfer, mitigation and acceptance (Safaeian, et.al , 2022). For infrastructure development projects, risks can be minimized or eliminated by eliminating the source, reducing the specific hazard, or shifting the risk to another entity. In addition, a project organization can accept risks by creating a backup plan that can be put into action in the event that the risk materializes. For positive risks (opportunities), there are also four alternatives that can be adopted in their responses including exploitation, enhancement, sharing and acceptance (Naji & Ali, 2017).

A study conducted by Ahmadi-Javid, Fateminia & Gemünden (2020) was an appraisal of risk response planning and its implication on project portfolio management. The inquiry offered a method informed by mathematical optimization to come up relevant responses to project risks. The proposed framework was seen to play an instrumental role in management of projects. There is another body of literature that classifies five broad strategies of responding to risky events: prevention, reduction, sharing, transferring and acceptance. Risk prevention covers an array of ways that can be adopted to avoid any inherent risk occurrence as the project moves in the cycle (Yan, Liu, Zhao & Skitmore, 2021).

The goal of risk reduction is to minimize the effect that delays have on project performance. Risk sharing occurs when a certain percentage of the costs of risks are transferred among parties to the contract. Risk transfer is a situation when all the costs of risks are passed to third parties like insurance firms. Risk acceptance is where all the uncertainties are accepted (Marinich, 2020).

In Malaysia, research with focus on construction projects by Karunakaran, Abdullah, Nagapan, Sambasivan and Sekar (2020) was to link project risk response as a moderator in the nexus between delay factors in projects and performance. This investigation was a thematic survey of the existing literature. A synopsis of the themes included concerns about project performance, risk response strategies, and delays. It was discovered that there was a negative

correlation between project performance and delay difficulties. However, a clear correlation was found between the project's performance and its reaction to risks.

Risk Control Practice and completion of Road Projects

By tracking identified risks, identifying new ones, and conducting an evaluation of the efficacy of the risk management process, risk control practices assist in keeping an eye on the implementation of backup plans. Risk control aids in resolving discrepancies between intended and desired responses to hazards and contributes to an overall improvement in risk management procedures and activities. Monitoring the project's risk status is a continuous process that helps identify any deviation from the intended level of performance (Obondi, 2022). The various activities that can be done during risk control can range from the implementation of contingency plan, taking of corrective course as well as re-planning of the project. Uncontrolled risks in construction projects can lead cost and quality overruns as well as the delays in scope and schedule. Efforts should be in place for the risk owner to ensure there is periodic reporting to risk team and the project manager (Amoah & Pretorius, 2019).

Kiage and Namusonge (2016) performed a research in Kenya that examined risk management, project performance, and monitoring and evaluation (M&E) in telecommunications companies. According to the findings, the majority of respondents felt that elements like the necessity of routine risk analysis and the involvement of project managers in risk analysis greatly influenced how well projects performed. In another study by Obondi (2020), the methods for project risk management and their effect on the project's operational success were the primary focus. The investigation focused specifically on building projects. Risk audits, risk status meetings, risk assessment, and contingency reserve analysis were all included in the variables. The study was conducted in the United States, and the findings indicated that risk monitoring and control had a major and beneficial impact on project success.

Project Success

When a project is finished on schedule, on budget, to the satisfaction of all stakeholders, and in compliance with the specifications, it is often considered successful. Measures of project success that have been used functionally include profitability to contractors, lack of claims and legal cases, and "fitness for purpose" for occupants (Ola-awo et al, 2021). Traditional project success metrics include time, money, and requirements specifications. This criterion is still often employed in reports on project success in IT projects, even though it is presently the target of extensive criticism (Royal Academy of Engineering, 2017). The criticism focuses on three points that are related to the underlying assumptions of this definition: the project's success can be measured at the moment it has produced its deliverables; the project's success can be determined at the outset of the project, regardless of the amount of time, money, or requirements; and each project stakeholder can contribute equally to the project's success. Establishing time and financial constraints as well as objectives are always done at the start of

the project, when uncertainty is at its highest and it is nearly hard to establish reasonable goals and constraints Ika, & Pinto, (2022).

A project is considered successful, according to Castro et al. (2021), if it stays within the three constraints of time, money, and specifications. Proper feasibility studies, dedication to project methodology, planning, efficient monitoring, and assessment are only a few of the success components in a project. The main focus is on the outcomes, and the key performance indicators are project sickness (the project's capacity or inability to provide the expected objectives) and schedule and cost overruns (Carvalho, & Rabechini, 2015). It goes without saying that evaluating a project's success or failure is difficult and confusing. Ika and Pinto (2022) have noted that because different project stakeholders have differing perspectives on success or failure, it is still unclear how to quantify project success.

According to a research by Demirkesen & Ozorhon (2017), project management success is determined by factors including cost, time, and quality/performance, whereas project success is evaluated based on the project's overall objectives. They pointed out that it's crucial to distinguish between project performance, which can be assessed throughout the project's duration, and project success, which cannot be determined until the project is finished. Nonetheless, Albert, Balve, and Spang (2017) maintain that project success is determined by evaluating both the project management and the product (including facilities) aspects. The success of a construction project is largely dependent on the goals of money, schedule, and quality.

According to Castro et al. (2021), project management success is determined by factors such as cost, time, and quality/performance, whereas project success is evaluated based on the project's overall objectives. Alemayhu, M. (2023) states that three transaction metrics—budget, time, and quality—determine a project's success. Completion within the constraints of time, money, and quality will be just as important as completion itself in terms of success. He made the argument that these elements influence several aspects of a project's success. Planning effort throughout project design, planning during construction, goal commitment, project team motivation, technical capability, and scope are some of these success aspects.

The project sponsor is unavailable to approve strategic decisions; changes to the project scope; inadequate resources, excluding funding; inadequate time to complete the project; critical requirements are unclear or missing; inadequate project testing; critical project tasks are delivered late; key team members lack adequate authority; insufficient project funding; and key team members lack critical skills, according to a 2010 study by Muto Performance Corp. The third reason is that, as noted by de Wit (2018) as well, the goals and priorities of each project stakeholder are established differently at various points in the management hierarchy and throughout the project life cycle. It is important to differentiate between the success of a

project and its management, as well as between its performance and success. It is important to differentiate between the success of a project and its management, as well as between its performance and success.

Theoretical Review

The research will be anchored on three theories, which are, the enterprise risk management theory, the contingency theory and the prospect theory.

Prospect Theory

The proponent of this theory was Tversky and Kahneman in 1979 and supports decision making process under conditions of risks and uncertainties. The theory offers a description, explanation and prediction of the choices that are made by a typical individual when faced with uncertainties. The theory looks at how these choices undergo framing and evaluation when making decisions. When making judgments, the theory takes into account two stages: the assessment phase and the editing/framing phase. Framing is the study of how an option or choice is affected by the way or sequence in which it is presented to the decision-maker. There are two parts in the evaluation phase of this theory; value and weight function. The losses and gains in relation to some reference point inform the value gain.

Therefore, in light of this prospectus theory, individuals make decisions on the basis of the potential value of gains and losses as compared to the ultimate outcome. There are some specific heuristics that guide people when evaluating these gains and losses. Risk is exposure to probability of financial or economic gain or loss, delay, physical damage, injury due to uncertainty that is linked with undertaking of a given cause of action. The relevant of this theory to the study is that within construction projects, the occurrence of risks can have significant negative implication on quality and schedule as well as the budget provisions. Effective management of risks in construction projects required detailed planning, identification, analysis, development of adequate response strategies and the need to monitor and control risky events in order to ensure successful completion of road projects.

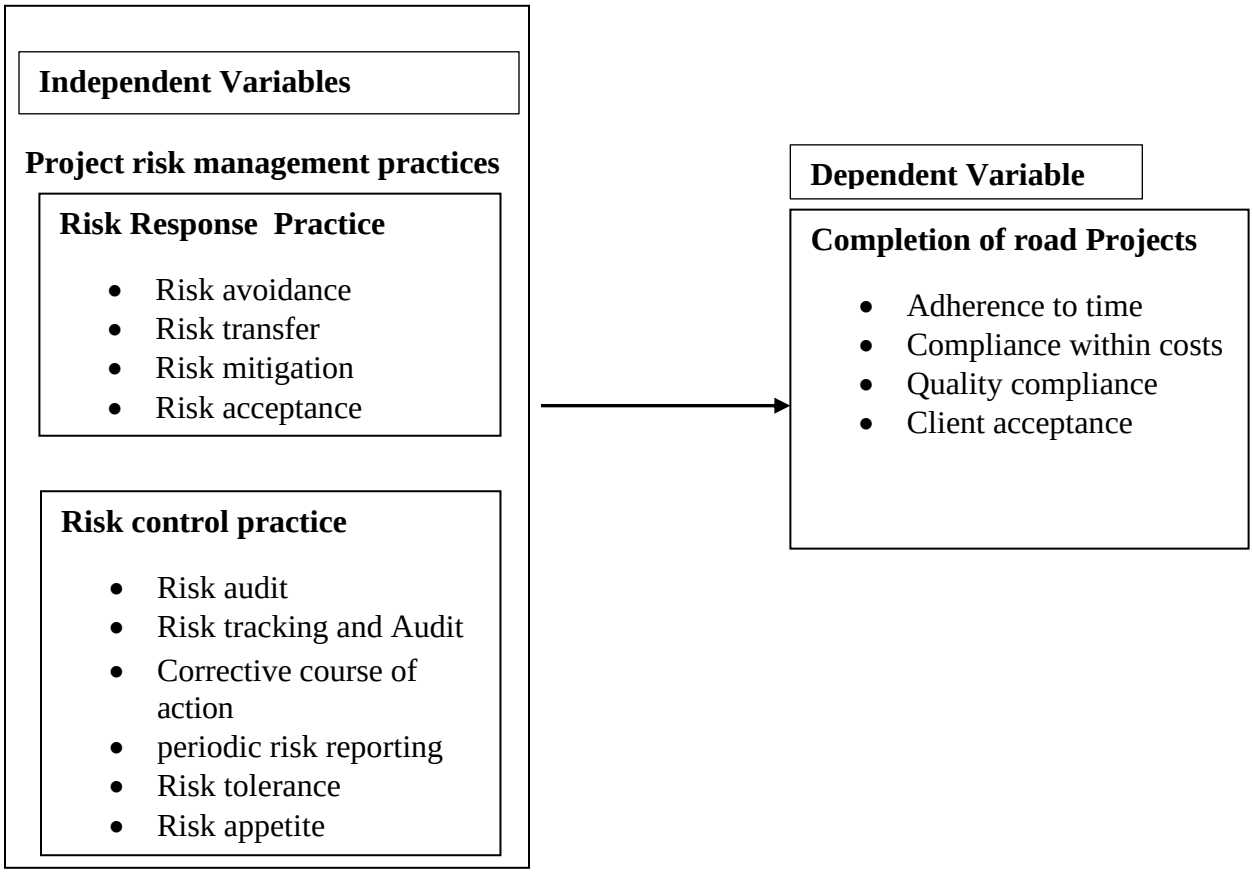
Risk Aversion Theory

Risk aversion is a concept in economics and finance, particularly in the study of uncertain decision-making. Daniel Bernoulli was an early and influential figure in the development of risk aversion theory. In 1938, he proposed a solution to the St. Petersburg paradox that introduced the concept of diminishing marginal utility of wealth, which helps explain risk-averse behavior. Bernoulli's theory proposed that people evaluate risk based on the potential utility of outcomes rather than just the expected monetary value, which causes them to prefer certain outcomes over uncertain ones with the same expected value.

During The twentieth century the risk aversion theory saw further developments, by John von Neumann and Oskar Morgenstern, who formalized the expected utility theory in their 1944 book "Theory of Games and Economic Behavior." This theory established a mathematical foundation for understanding decision-making under uncertainty and expanded on the concept of risk aversion. In the 1960s, Kenneth Arrow and John Pratt independently developed risk aversion measures, which became the foundation for understanding and quantifying risk preferences. Arrow's article "Aspects of the Theory of Risk Bearing" (1965) and Pratt's paper "Risk Aversion in the Small and in the Large" (1964) introduced the concepts of absolute and relative risk aversion, respectively. This theoretical framework serves as the foundation for the investigation into how risk aversion influences the effectiveness of risk management practices where construction projects are managed.

Using risk aversion theory principles, this study seeks to examine how project stakeholders' decisions regarding project risk management ranging from project managers, contractors, and financiers determine the outcome of the project. Understanding these dynamics is critical for developing projects risk management strategies that are aligned with stakeholders' risk preferences, resulting in increased project efficiency and performance. The risks aversion theory explores various risk management interventions and their influence on project timelines, budgets, and overall success. By correlating risk aversion measures with project outcomes, the study hopes to provide empirical evidence on the ability of various risk management strategies in informing policy decisions and directing resource allocation towards the most effective practices.

Conceptual Framework



RESEARCH METHODOLOGY

Research Design

A research design is a strategy that offers direction for the study in terms of data collection and analysis (Dźwigoł, 2019). It serves as a guide for the techniques to be used in the collection, examination, and interpretation of the data. In this study, a descriptive survey research design was used. Descriptive survey research design, according to Harris, Holyfield, Jones, Ellis, and Neal (2019), aims to offer answers to questions about the state of an inquiry by collecting data. Some of the most important topics that require investigation using this kind of design are pertinent behaviors and characteristics. Adopting this design was justified by the fact that it enabled the research to give an account of the present situation regarding project risk management procedures and the accomplishment of road building projects in the county of Nakuru, Kenya.

Target Population

The demographic that was the focus of the study included engineers, risk managers,

subcontractors, and project contractors. Target population is a representation of items as well as individuals that are in line with established criteria for selection and inclusion in the study (Thanem & Knights, 2019). There are seven ongoing road projects in the county of Nakuru, Kenya (appendix III).

Table . 1: Target Population

Category of employment	Target population
Contractors	14
Sub-Contractors	42
Engineers	28
Risk Managers	14
Total	**98**

Source: Ministry of Public Works (2022)

Sampling Size and Procedures

The process of choosing participants for an investigation is called sampling (Hennink, Hutter & Bailey, 2020). In contrast, the sample size refers to the smaller percentage taken from the wider population that serves as the foundation for the results' generalization (Ghauri, Grønhaug & Strange, 2020). This study used a census methodology due to the comparatively smaller sample size, meaning that all 98 respondents were included in the analysis. According to Gravetter and Forzano (2018), a census is the best option when the target population is less than 200 persons per unit.

Pilot Testing

Prior to the main investigation, a pilot test was carried out in the county of Kericho on a smaller scale. The county was conveniently picked for piloting given its proximity to the researcher's workplace to cut the cost of piloting. The aim was to provide guideline for examining specific issues of the survey (Bell, Bryman & Harley, 2018). It helped in testing of understandability and clarity of the questions on the questionnaire. Adams and McGuire (2022) suggest that 1–10% of the respondents from the target demographic be used for the pilot study. Therefore, in the current study, 10% of the target group comprised of 10 respondents, who were chosen to participate in the pilot study. To prevent any bias, the researcher selected county of Kericho as it has similar characteristics with county of Nakuru which is the area under study.

Data Collection Procedure

A research permit NACOSTI and an introduction letter from Mount Kenya University's postgraduate school Before heading out into the field to gather data from the intended responders, was prepared. Participants who were anticipated to provide a higher response rate from the research participants self-administered the questionnaire. Participants were

given time to complete the questionnaire before it was collected at the site of administration. This tactic was intended to boost the response rate.

Data Analysis and Presentation

According to Assarroudi et al. (2018), data analysis is the use of logic to understand gathered data in order to forecast consistent trends and summarize pertinent features. The data was entered into SPSS version 24, which provided percentages, means, and standard deviations. To describe the variables, the data was shown in tables and frequencies. A multiple regression analysis model was used in the study to evaluate the strength and association of the variables. This is how the regression model looked:

$PS= \beta 0 +\beta 1RIP+\beta 2RAP+\beta 3RRPP+\beta 3RCP +\varepsilon$

Where;

PS = Implementation of road projects

RIP = Risk Identification Practice

RAP = Risk Analysis Practice

RRPP = Risk Response Planning Practice

RCP = Risk Control Practice

ε is the error term

β is the regression beta coefficient

RESEARCH FINDINGS AND DISCUSSION

Response Rate

The study targeted a sample size of 98 respondents out of which 93 filled and returned the questionnaires giving a response rate of 95% five questionnaires were not obtained from the respondents 5 % response failure. With 95 % response rate, the study had a considerable sample size adequate for the research. According to Barbie (2014), a high response rate is advantageous since it greatly reduces non-response bias as compared to a low response rate.

Table 2: Response Rate

Sampled No. of respondents	No. of Questionnaires Returned	Response Rate (%)
98	**93**	**95**

(Source field data,2023)

Pilot Test Results

The study conducted a pilot test which was conducted at a pilot test was carried out in county of Kericho whereby 10 questionnaires were issued to engineers, risk managers, subcontractors, and project contractors. The result of the findings is shown Table 3

Table 3: Reliability Test Results

Variable	No. of Items	N	Cronbach's Alpha Value
project risk identification	7	10	.764
project risk analysis	7	10	.747
project risk planning response	6	10	.751
Project risk control	7	10	.812
completion of road construction projects	4	10	.741

(Source filed data 2024)

From the pilot study the Cronbach Alpha values was 0.764, .747, .751, .812 and .741 respectively. Therefore, project risk identification, project risk analysis , project risk planning response , Project risk control and completion of road construction projects all had Cronbach values which were greater than 0.7. According to George and Mallery (2003), Cronbach correlation coefficients greater or equal to 0.7 are acceptable. Field (2009) observes that a Cronbach's $\alpha > 0.7$ implies that the research instrument provides a good measure for research.

Demographic Profile of the Response

The study analyzed the demographic profile of the respondents based on the gender, age, work experience and academic qualification.

Gender of the Respondents

The study sought to find out the gender of the respondents. The results of the analysis are indicated in Table 4

Table 4: Gender of the Respondents

Gender	Frequency (n)	Percentage
Male	61	66
Female	32	34
Total	93	100

(Source field data 2024)

From the findings 66% of the respondents were male while 34% were female. This implies that majority of the respondents who are involved in road construction projects were males.

Age of respondents

The study sought to find out the age of the respondents, the results of the analysis are indicated in Table 5

Table 5: Age of respondents

Age	Frequency (n)	Percentage
18-30 years	20	22
31-40 years	33	35
41-50 years	21	23
Above 51 years	19	20
Total	93	100

(Source field data 2024)

From the findings 22% of the respondents were aged between 18-30 years. Those between 31-40 years comprised of 35 %. Those between 41-50 years were 23% while those above 51 years were 20%. This implies that majority of the respondents involved in road construction project were between 31-40 years old.

Work experience in road projects

The study sought to find out the working experience of the respondents in road projects. The results of the analysis are indicated in Table 6

Table 6: Work experience in road projects

Years	Frequency(n)	Percentage
Less than 5 Year	19	20
5-10 Years	41	44
11-20 Years	25	27
Above 21 Years	8	9
Total	93	100.0

(Source field data 2024)

From the finding 20% of the respondents stated that they had been in the road project for less than 5 years, 44 % had been working in the road project for 5-10 years, 27% had been working in road project between 11-20 years while 9% had been working in the road projects for more than 21 years. This implies that majority of the respondents have been working in road projects between 5-10 years implying that they had experience on road projects.

Level of education

The study sought to find out the academic qualification of the respondents, the results of the analysis are indicated in Table 7

Table 7: Level of education

Level of education	Frequency (n)	Percentage
Primary	0	0
Secondary	0	0
Diploma	12	13
Bachelor	68	73
Masters	11	12
Doctorate	2	2
Total	93	100

(Source field data 2024)

From the findings none of the respondents had primary and secondary qualification at 0%. Those respondents who had diploma as their education qualification were 13%. Those who had bachelor degree comprised of 73%. Those who had master's degree qualification comprised of 12 % while 2 % of the respondents had doctorate degree as their education qualification. This implies that majority of the respondents were well educated with majority holding bachelor degree hence they answered the questions correctly and were all qualified to work in the road projects.

Descriptive Statistics for the study variables

The section describes descriptive statistics for the study variables. The findings are presented in form of percentage, mean and standard deviation

Risk Response Practice and completion of road projects.

The third objective of the study sought to establish the influence of project risk response practice on completion of road projects in county government of Nakuru, Kenya. The results were as shown in Table 8

Table 8: Project risk response practice on completion of road projects

Risk Response Planning Practice	SA	A	N	D	SD	N	Mean	Std
The identified negative risky events in the road construction projects are avoided through elimination of the cause	42%	38%	18%	2%	0%	93	4.18	0.504
Risks in the road construction projects are avoided through	39%	31%	12%	8%	0%	93	4.42	0.341

reduction of the specific threat								
The identified risks in the road construction projects are mitigated through transfer to insurance firms	41%	44%	11%	4%	0%	93	4.46	0.734
Positive risky events in the road construction projects are responded to through exploitation	51%	34%	10%	5%	0%	93	4.41	0.743
Road construction projects respond to the identified positive risks through enhancement	44%	44%	12%	6%	0%	93	4.20	0.654
Sharing is a response strategy to the identified risks in the road construction projects	31%	50%	4%	5%	0%	93	4.42	0.745

(Source field data 2024)

The research findings on project risk response practice on completion of road projects in the county of Nakuru, Kenya revealed the following results. Majority the respondents at 80 % with a mean of 4.18 and standard deviation of 0.504 agreed that the identified negative risky events in the road construction projects are avoided through elimination of the cause. The results also showed that majority of the respondents at 70 % with a mean of 4.42 and standard deviation of 0.341 agreed that risks in the road construction projects are avoided through reduction of the specific threat. Majority the respondents at 85 % with a mean of 4.46 and standard deviation of 0.734 agreed that ppositive risky events in the road construction projects are responded to through exploitation. Majority the respondents at 88 % with a mean of 4.20 and standard deviation of 0.654 agreed that road construction projects respond to the identified positive risks through enhancement. Finally, the results showed that majority the respondents at 81 % with a mean of 4.42 and standard deviation of 0.745 agreed that sharing is a response strategy to the identified risks in the road construction projects. The results implied that the respondents agreed on the project risk response risk practice on completion of road projects in county of Nakuru, Kenya. The study findings are in tandem with those of Ahmadi et.al (2020) who looked at an appraisal of risk response planning and its implication on project portfolio management. The inquiry offered a method informed by mathematical optimization to come up relevant responses to project risks. The proposed framework was seen to play an instrumental role in management of projects. There is another body of literature that classifies five broad strategies of responding to risky events: prevention, reduction, sharing, transferring and acceptance. Risk prevention covers an array of

ways that can be adopted to avoid any inherent risk occurrence as the project moves in the cycle (Yan, Liu, Zhao & Skitmore, 2021).

The goal of risk reduction is to minimize the effect that delays have on project performance. Risk sharing occurs when a certain percentage of the costs of risks are transferred among parties to the contract. Risk transfer is a situation when all the costs of risks are passed to third parties like insurance firms. Risk acceptance is where all the uncertainties are accepted (Marinich, 2020).

Risk control practice on completion of road Projects

The fourth objective of the study establish the influence of project risk control practice on completion of road projects in Nakuru county, Kenya. The results were as shown in Table 9

Table 9: Project risk response practice on completion of road projects

Risk Control Practice	SA (%)	A (%)	N (%)	D (%)	SD (%)	N	Mean	Std.
There is continuous tracking of all the identified risky events in the road projects	48	34	6	6	6	93	4.17	0.702
Risk tracking observes the risk status of the road projects so that any deviation from the desired level of performance of the project can be identified	30	48	14	8	0	93	3.94	0.830
Risk status meetings are convened in the road Projects	40	34	18	4	4	93	4.15	0.712
Risk audit is done to identify new sources of risks in the road projects	44	36	12	5	3	93	4.53	0.628
Risk audit is conducted to establish the extent of adherence to the contingency plan in the road projects	30	40	20	10	3	93	4.63	0.598
Risk audit is conducted to establish the extent of adherence to the contingency plan in the road projects	26	36	28	6	4	93	4.56	0.621
There is periodic reporting of risks in the road Projects	28	40	23	7	2	93	4.13	0.543

There is monitoring of the execution of the contingency plans to undertake a relevant corrective course	48	40	3	5	4	63	4.31	0.536

(Source field data 2024)

The research findings on project risk control practice on completion of road projects in the county of Nakuru, Kenya revealed the following results.

Majority the respondents at 82 % with a mean of 4.17 and standard deviation of 0.702 agreed that there is continuous tracking of all the identified risky events in the road projects. The results also showed that majority of the respondents at 78 % with a mean of 3.94 and standard deviation of 0.830 agreed that risk tracking observes the risk status of the road projects so that any deviation from the desired level of performance of the project can be identified. Majority the respondents at 74 % with a mean of 4.15 and standard deviation of 0.712 agreed that risk status meetings are convened in the road Projects. Majority the respondents at 80 % with a mean of 4.53 and standard deviation of 0.628 agreed that rrisk audit is done to identify new sources of risks in the road projects.

The results also showed that majority the respondents at 70 % with a mean of 4.63 and standard deviation of 0.598 agreed that risk audit is conducted to establish the extent of adherence to the contingency plan in the road projects. Majority the respondents at 62 % with a mean of 4.56 and standard deviation of 0.621 agreed that risk audit is conducted to establish the extent of adherence to the contingency plan in the road construction projects. Majority the respondents at 68 % with a mean of 4.13 and standard deviation of 0.543 agreed that there is periodic reporting of risks in the road construction projects. Finally, the results showed that majority the respondents at 88 % with a mean of 4.31 and standard deviation of 0.536 agreed that there is monitoring of the execution of the contingency plans to undertake a relevant corrective course. The overall results implied that the respondents agreed on the project risk control practice on successful completion of road projects in the county of Nakuru, Kenya

These research findings agree with Kiage and Namusonge (2016) who performed research in Kenya that examined risk management, project performance, and monitoring and evaluation (M&E) in telecommunications companies. According to the findings, the majority of respondents felt that elements like the necessity of routine risk analysis and the involvement of project managers in risk analysis greatly influenced how well projects performed. In another study by Obondi (2020), the methods for project risk management and their effect on the project's operational success were the primary focus. The investigation focused specifically on building projects. Risk audits, risk status meetings, risk assessment, and contingency reserve analysis were all included in the variables. The study was conducted in the United States, and the findings indicated that risk monitoring and control had a major and beneficial impact on

project success.

Linearity test results

Linearity tests were undertaken to establish the linear relation between project risk identification, project risk analysis, project risk response, Project risk control.

Table10: Linearity between project risk response and completion of road projects

			Sum of Squares	df	Mean Square	F	Sig.
successive completion on road construction projects* project risk response	Between Groups	(Combined)	2.639	13	.229	1.266	.319
		Linearity	1.522	7	1.532	8.223	.002
		Deviation from Linearity	1.077	4	.107	.570	.800
	Within Groups		2.613	33	.177		
	Total		5.242	92			

Results in table 17 shows that the p-value for the deviation from linearity between project risk analysis and successive completion on road construction projects was 0.800. The deviation from linearity was greater than 0.05; 0.800>0.05. Therefore, there existed linear relationship between project risk analysis and successful completion of road projects in Nakuru county

Table 11: Linearity between project risk control and completion of road projects.

			Sum of Squares	df	Mean Square	F	Sig.
successive completion on road construction projects* project risk control	Between Groups	(Combined)	3.856	13	.375	4.102	.005
		Linearity	2.845	7	2.836	30.362	.000
		Deviation from Linearity	1.010	4	.101	1.184	.361
	Within Groups		1.405	33	.093		
	Total		5.251	92			

The findings show that the deviation from linearity between was 0.361. This implies that there was

a linear relationship between project risk control and successive completion on road construction since 0.361 is greater than 0.05 level of significance.

Homoscedasticity test results

Homoscedasticity describes the homogeneity of disturbance between independent and dependent variables across the values of the independent variables. It expresses constant residual terms across observations. Conversely, unequal errors lead to heteroscedastic problem. Heteroscedasticity contribute to inefficient parameter estimates and incorrect confidence intervals. When the value of the dependent variable changes, the error term ought not to vary much. For homoscedastic data, p-value is greater than 0.05. Homoscedasticity test results are shown in Table 12

Table 12: Homoscedasticity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.030	.228		.130	.896
	project risk response	.006	.031	.049	.215	.830
	project risk control	-.015	.042	-.092	-.362	.721

a. Dependent Variable: Completion of road projects

The results in Table 12 shows that project risk response, Project risk control had p-values 0.830, and 0.721 respectively. All these values are greater than 0.05, implying that the data was homoscedastic and there was no heteroscedasticity problem. The results helped the researcher to validate the appropriateness of the linear regression analysis.

Correlation Analysis

The researcher undertook correlation analysis to establish the nature and strength of the relationships between the independent and the dependent variables of the study.

Project risk response and completion of road projects

Table 13: Correlation between Project risk response and completion of road projects

		Project risk response
Completion of road projects	Pearson Correlation	.219**
	Sig. (2-tailed)	.002
	N	93

**. Correlation is significant at the 0.01 level (2-tailed).

The study further sought to establish the nature of the relationship between project risk responses on completion of road projects in Nakuru County, Kenya. The findings indicated that r=0.219 and p=0.002. The p value was less than the significant level of 0.01 meaning that there is positive statistically significant relationship between project risk responses on completion of road projects in Nakuru County, Kenya. This implies that project risk responses have an influence on completion of road projects in Nakuru County, Kenya.

Project risk control and completion of road projects

Table 14: Correlation between project risk control and completion of road projects

		Financial Skills
Completion of road projects	Pearson Correlation	.269**
	Sig. (2-tailed)	.004
	N	93

**. Correlation is significant at the 0.01 level (2-tailed).

The study further sought to establish the nature of the relationship between project risk control on completion of road projects in Nakuru County, Kenya. The findings indicated that r=0.269 and p=0.004. The p value was less than the significant level of 0.01 meaning that there was statistically significant relationship between project risk control on completion of road projects in Nakuru County, Kenya. This implies that project risk control influences completion of road projects in Nakuru County, Kenya.

Regression Model Summary

The researcher used the value of adjusted R Squared to find out the strength of the relationship between independent and dependent variables. The researcher preferred using the value of Adjusted R-squared other than R Squared since it gives the percentage of variation explained by only those independent variables that, in reality, affect the dependent variable. The findings is shown in Table 15. The findings are shown in Table 15.

Table 15: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.878[a]	.770	.797	.28371

a. Predictors: (Constant) project risk response, Project risk control

b. Dependent Variable: Completion of road projects

The study conducted a regression analysis to find out the strength of the relationship between independent and dependent variables as shown in Table 15. The findings show that completion of road projects in Nakuru County, Kenya is 79.7% as explained by the independent variables under this study while 20.3% is the variation due to other factors which have not been covered in this study.

ANOVA of the Regression Model

In the ANOVA table above, the F statistic = 60.9150 as illustrated in Table 16. Since the f calculated is greater than f statistic, it infers that the model is statistically significant. Therefore, there is strong evidence that the regression results are statistically significant and the variation in the results is insignificant that cannot result to much difference in case of a change in the study units (population) and therefore the model did for the data.

4.16 Multiple Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.193	.147		4.035	.000
	project risk response	.351	.072	.191	2.095	.004
	Project risk control	.225	.040	.304	6.375	.006

Dependent Variable: Completion of road projects in Nakuru County, Kenya

The study also conducted a regression analysis to establish the regression coefficients connecting the independent and dependent variables as illustrated by the equation illustrated below:

$PS= \beta 0 +\beta 1RIP+\beta 2RAP+\beta 3RRPP+\beta 3RCP +\varepsilon$

Where;

PS = Implementation of road projects

RRPP = Risk Response Planning Practice

RCP = Risk Control Practice

ε is the error term

β is the regression beta coefficient

From the results in Table 25 the given equation was answered by the values of Unstandardized Coefficients (β). The results indicate that project risk identification, project risk analysis, project risk response, Project risk control have a positive relationship with completion of road projects in Nakuru County, Kenya. Thus,

$Y = 0.193 + 0.248_{RIP} + 0.260_{RAP} + 0.351_{\mathbf{RRPP}} + 0.225_{\mathbf{RCP}} + \varepsilon$

The value of implementation of road projects in Nakuru County, Kenya without the influence of the predictor variables is 0.193. This explains that, at any given time, successful implementation of road projects in Nakuru County, Kenya will be 0.193 holding other factors constant at 0. The results also illustrate that, a unit change risk identification practice would result to 0.248 times change in successful implementation of road projects in Nakuru County, Kenya , a unit increase in risk analysis practice would result to 0.260 times increase in successfull implementation of road projects in Nakuru County, a unit increase in risk response planning practice would result to 0.351 times increase in successful implementation of road projects in Nakuru County , a unit increase in risk control practice would result to 0.225 times increase in successful implementation of road construction projects in Nakuru County in Kenya .

Answers to research questions

The study sought to answer the questions how does risk response planning practice influence completion of road projects in county government of Nakuru, Kenya? The findings indicated that r=0.219 and p=0.002. The p value was less than the significant level of 0.01 meaning that there is positive statistically significant relationship between project risk responses on completion of road projects in Nakuru County, Kenya.

The study sought to answer the questions How does risk control practice influence completion of road projects in Nakuru County, Kenya? The findings indicated that r=0.269 and p=0.004. The p value was less than the significant level of 0.01 meaning that there was statistically significant relationship between project risk control on completion of road projects in Nakuru County, Kenya.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The study sought to determine the summary of key major findings of the study. The summary was categorized in terms of specific objectives.

Influence of project risk response on completion of road projects in the county of Nakuru, Kenya

From the analysis the study revealed that the identified negative risky events in the road projects are avoided through elimination of the cause Moreover, the study revealed that risks in the road projects are avoided through reduction of the specific threat. The study further revealed that the identified risks in the road projects are mitigated through transfer to insurance firms. The study also revealed that positive risky events in the road projects are responded to through exploitation. In addition, the study revealed that road projects responded to the identified positive risks through enhancement. The study also revealed that sharing is a response strategy to the identified risks

in the road projects.

Influence of project risk control practice on completion of road projects in the county of Nakuru, Kenya

The study findings on project risk control revealed that there is continuous tracking of all the identified risky events in the road projects. The study also revealed that risk tracking observes the risk status of the road projects so that any deviation from the desired level of performance of the project can be identified. Moreover, the study also revealed that risk status meetings are convened in the road projects. Further, the study revealed that Risk audit is done to identify new sources of risks in the road projects. The study also revealed that risk audit is conducted to establish the extent of adherence to the contingency plan in the road projects. The study also revealed that risk audit is conducted to establish the extent of adherence to the contingency plan in the road projects. The study also revealed that there is periodic reporting of risks in the road projects. Finally, the study findings revealed that there is monitoring of the execution of the contingency plans to undertake a relevant corrective course

Conclusion

The study concludes the following based on the summaries.

Influence of project risk response practice on completion of road projects

From the findings the study concluded that r=0.219 and p=0.002. The p value was less than the significant level of 0.01 meaning that there is positive statistically significant relationship between project risk responses on completion of road projects in Nakuru County, Kenya. This implies that project risk responses have an influence on completion of road projects in Nakuru County, Kenya.

Influence of project risk control practice on completion of road projects

From the findings the study concluded that r=0.269 and p=0.004. The p value was less than the significant level of 0.01 meaning that there was statistically significant relationship between project risk control on completion of road projects in Nakuru County, Kenya. This implies that project risk control influences completion of road projects in Nakuru County, Kenya.

Recommendations

In the light of the foregoing findings, the study recommends that;

Regarding project risk response on successful completion of road projects, the study recommended that identified negative risky events in the road projects should be avoided through elimination of the cause. Risks in the road projects should be avoided through reduction of the specific threat. Identified risks in the road projects should be mitigated through transfer to insurance firms. Positive risky events in the road projects should be responded to through exploitation. Road projects should respond to the identified positive risks through enhancement. Risk sharing response strategy should be identified risks in the road projects.

In regard to project risk control practice on completion of road projects, the study recommends that project risk control should be continuous to track all the identified risky events in the road projects. Risk tracking should observe the risk status of the road projects so that any deviation from the desired level of performance of the project can be identified. Risk status meetings should be convened in the road projects. Risk audit should be carried to identify new sources of risks in the road projects. Risk audit should be conducted to establish the extent of adherence to the contingency plan in the road projects. Risk audit be conducted to establish the extent of adherence to the contingency plan in the road projects. There should be periodic reporting of risks in the road projects and there should be monitoring of the execution of the contingency plans to undertake a relevant corrective course to enhance successful completion of road projects.

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